

NEW DESCRIPTIONS

STUDIES ON *OXYSYCHUS* DELUCCHI, HYMENOPTERA: CHALCIDOIDEA: PTEROMALIDAE, FROM INDIA WITH THE DESCRIPTION OF A NEW SPECIES¹

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(With fifteen text-figures)

Key words: Chalcidoidea, Pteromalidae, *Oxysychus*, *O. macregaster* sp. nov.

The species of *Oxysychus* Delucchi, namely, *O. coimbatorensis* (Ferriere), *O. nupserhae* (Dutt & Ferriere), *O. sphenopterae* (Ferriere) from India are reviewed and one new species *O. macregaster* sp. nov. is described. A key to the species of *Oxysychus* from India is also provided.

INTRODUCTION

The genus *Oxysychus* Delucchi is well known from the Ethiopian, European and Oriental Regions. In India, this pteromalid genus is represented by *O. sphenopterae*, *O. coimbatorensis*, *O. nupserhae* and a new species *O. macregaster* which is described here. The observations on some character variations of propodeum, and number of tibial spurs are discussed. The diagnostic characters and illustrations of the species known from India are also provided.

The terminology in this paper generally follows Graham (1969). The antennal funicular segments are numbered F1-F5 and the gastral tergites T1-T6, beginning with the first after the petiole and the last before the epipygium. The following abbreviations are used: OOL-Ocello-ocular distance; POL - post-ocellar distance; SMV-submarginal vein; MV- marginal vein; PMV - post marginal vein and STV - stigmal vein.

The type specimens have been deposited with the Zoological Survey of India, Calicut.

Oxysychus Delucchi

Oxysychus Delucchi, 1956. *Z. angew. Ent.*

39: 240. Type species *Dinarmus silvestri* Masi, by original designation.

This plesiomorphic genus of Pteromalidae has a sessile gaster, extensive pilosity on the dorsal thorax and two spurs on the hind tibia (Boucek 1988). The other generic characters are: carinate pronotal collar; propodeum between spiracles almost flat or weakly convex; antenna in female with 3 anelli and 5 funicular segments, and in male 2 and 6 respectively. But our observations on the type specimen of *Oxysychus sphenopterae* revealed some variations in the above characters, such as hind tibia with one spur and propodeum with a weak median carina obliterated in the middle by an obscure cross ridge. We have not seen further material of *Oxysychus sphenopterae*, hence refrain from commenting on these variations. The hind tibial spurs are usually double and one may become rudimentary in *Oxysychus sphenopterae* as given by Mani (1989). Some specimens of *Oxysychus macregaster* sp. nov. also show variation in possessing a weak and complete median carina on propodeum, which is either absent or only slightly indicated anteriorly.

KEY TO THE INDIAN SPECIES OF *OXYSYCHUS* DELUCCHI

1. Gaster with hind margins of T1-T3 medially produced and distinctly notched in the middle (Fig. 14); antennae slender (Fig. 12); forewing with PMV 2x STV; all femora testaceous *macregaster* sp. nov.

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- Gaster with hind margins of T1-T3 not produced or notched as above; antennae not very slender (Figs 2, 5, 8); PMV shorter, less than 2 x STV; femora brown to blackish-brown (prominent on hind femora) 2
2. Hind tibia with one spur; scutellum almost flat (Fig. 7); antennae with scape not reaching above level of vertex; propodeum (Fig. 10) with a weak median carina obliterated in the middle by an obscure cross ridge; forewing with STV slightly curved *sphenopterae* (Ferriere)
- Hind tibia with two distinct spurs; scutellum convex; scape reaching above level of vertex; propodeum without median carina and cross ridge; STV not curved 3
3. Gaster elongate, pointed at tip and distinctly narrower than thorax (Fig. 1); scutellum highly convex, almost as long as broad; antenna (Fig. 2) with club shorter than two preceding segments combined; STV shorter, only one third of MV
..... *coimbatorensis* (Ferriere)
- Gaster oval (Fig. 4), not narrower than thorax; scutellum less convex, shorter than broad; club a little longer than two preceding segments combined; STV longer, almost half of MV *nupserhae* (Dutt & Ferriere)

***Oxysychus coimbatorensis* (Ferriere)**
(Figs 1-3)

? *Dinarmus sauteri* Masi, 1926. *Konowia* 5: 360. Farooqi & Subba Rao, 1986: 296 (Synonymy).

Dinarmus coimbatorensis Ferriere, 1939: 164. Boucek *et al.* (1979): 449 (New combination).

Farooqi & Subba Rao (1986) placed *Dinarmus sauteri* Masi under *O. coimbatorensis* with a question mark. We have examined the lectotype of *O. coimbatorensis* (Ferriere) and several freshly collected specimens. As the original description by Ferriere is fairly good,

only diagnostic characters of the species are given here. Female: Length 2.5-5 mm. Head and thorax dark bluish-green; gaster aeneous, shining green at base; body stout, covered with distinct white pubescence; head and thorax reticulate punctate. Antennae (Fig. 2) with length of F1 being 2x length of pedicel; club stout, oval, shorter than two preceding segments combined. Thorax (Fig. 1) convex; scutellum broadly rounded at tip, almost as long as broad; propodeum without median carina; forewing (Fig. 3) with MV 3x STV; PMV almost 2x STV. Gaster (Fig. 1) elongate, longer than head plus thorax, narrower than thorax. Some specimens have the last tergites less elongate and the gaster scarcely longer than head plus thorax.

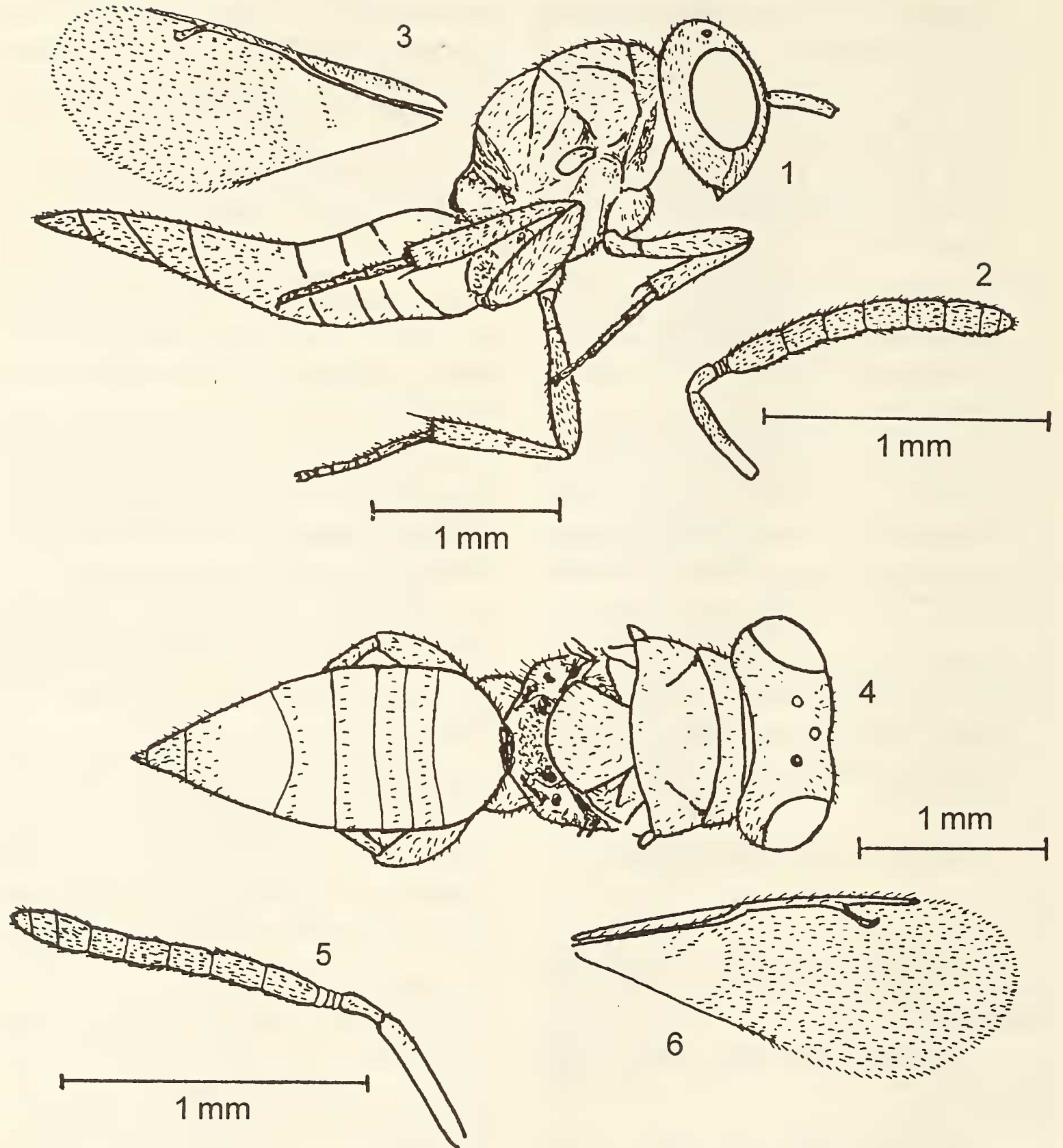
Male: Length 1.5-3 mm. Smaller, differs from the female in having antennae more elongate, with 2 anelli and 6 funicle segments; gaster oval, depressed, shorter than thorax, with a broad yellow spot reaching the middle.

Biology: Parasitic on *Hypolixus truncatulus* (Fabricius), *Pempherulus affinis* (Faust) (Coleoptera: Curculionidae) ex. Stem of *Amaranthus viridis* (Farooqi & Subba Rao 1986).

Distribution: India (Kerala, Tamil Nadu, Andhra Pradesh, Bihar, Delhi) and Pakistan.

Material examined: Lectotype: *Dinarmus coimbatorensis* Ferriere, 1939, ♀; S. India: Coimbatore, iv, vii, viii. 1939, Coll. P.N. Krishna Ayyar, ex. *Pempherus affinis* (British Mus. type. Hym. 5.673).

Other material: 5 ♀, INDIA: Kerala: Calicut University Campus, 14.ii.1985, v.1985, ix.1985 and x.1985, Coll. Narendran & party; 14 ♀, 6 ♂, Calicut University Campus, Coll. P.M. Sureshan 1986-1989; 1 ♀, Thekkady, 11.v.1986; 3 ♀, Parambikulam Wildlife Sanctuary, 22.xii.1985; 2 ♀, Peechi, 29.x.1985, Coll. Narendran & party; 15 ♀ and 2 ♂, Coll. P.M. Sureshan, different parts of Kerala 1986-1989; 2 ♀, Andhra Pradesh: Tenali, 28.ix.1986, Coll. Narendran & party.



Figs 1-3: *Oxysychus coimbatorensis* (Ferriere), Female: 1. Body in profile,
2. Antenna, 3. Forewing
Figs 4-6: *Oxysychus nupserhae* (Dutt & Ferriere), Female: 4. Body in dorsal view,
5. Antenna, 6. Forewing

Oxysychus nupserhae (Dutt & Ferriere)
(Figs 4-6)

Neocatolaccus nupserhae Dutt & Ferriere, 1961. *Indian J. Agr. Sci.* 31: 139. Boucek *et al.* 1979: 450 (New combination).

Diagnostic characters: Female: Length 3-6 mm. Head and thorax dark blue, almost black; gaster aeneous with coppery shine; head with frons swollen; cheeks large; vertex narrow; POL greater than OOL. Antennae (Fig. 5) inserted a little above lower ocular border; scape extends a little above vertex level; third anellus a little longer than others; club a little longer than two preceding segments together. Thorax (Fig. 4) rugulose punctate; pronotum very short; scutellum less convex, shorter than broad; propodeum with lateral folds less prominent; median carina absent. Forewing (Fig. 6) with MV almost half of SMV, STV half of MV. Legs strong; distal tibial ends and tarsi almost whitish. Gaster (Fig. 4) oval, pointed behind, not narrower than thorax, longer than head plus thorax.

Male: Length 2.3-3 mm, smaller than female; antennae with 2 anelli and 6 funicular segments; gaster oval, equal to thorax, depressed, with a brown spot at the base reaching a little beyond middle.

Biology: Parasitic on Cerambycid beetle *Nupserha bicolor* Thomson girdling the stem of Jute (Boucek *et al.* 1979).

Distribution: India (Kerala, W. Bengal, Delhi)

Material examined: 2 ♀, 1 ♂, India: Kerala: Parambikulam Wildlife Sanctuary, 22.xii.1985, Coll. Narendran and party; 1 ♀, Wynad (Nanchal), 10.xii.1994, Coll. P.M. Sureshan; 1 ♂, Kazhakuttom, 25.ii.1989, Coll. P.M. Sureshan; 11 ♀ and 7 ♂, Calicut University Campus, Coll. P.M. Sureshan 1986-1989.

Oxysychus sphenopterae (Ferriere)
(Figs 7-10)

Neocatolaccus sphenopterae Ferriere, 1931. *Bull. Ent. Res.* 22: 130. Boucek *et al.*

1979: 450 (New combination).

We have examined the holotype of this species, the observed diagnostic characters are given below:

Female: Length: 3.3 mm. Head and thorax dark blue, almost black; gaster aeneous with a little greenish reflection on T1; head punctate; lower face swollen; cheeks large. Antennae (Fig. 8) inserted in the middle of face, scape not exceeding above vertex level; third anellus little longer; flagellum thick; club a little shorter than two preceding segments combined. Thorax (Fig. 7) punctate; pronotum very short; mesoscutum flat above; scutellum as long as broad, almost flat; propodeum (Fig. 10) with an obscure median ridge and a weak median carina indicated only anteriorly. Forewing (Fig. 9) with MV half of SMV; STV half of MV, slightly curved. Legs strong, fore femora somewhat thickened; hind tibia with one strong spur. Gaster (Fig. 7) oval, pointed at apex, longer than thorax.

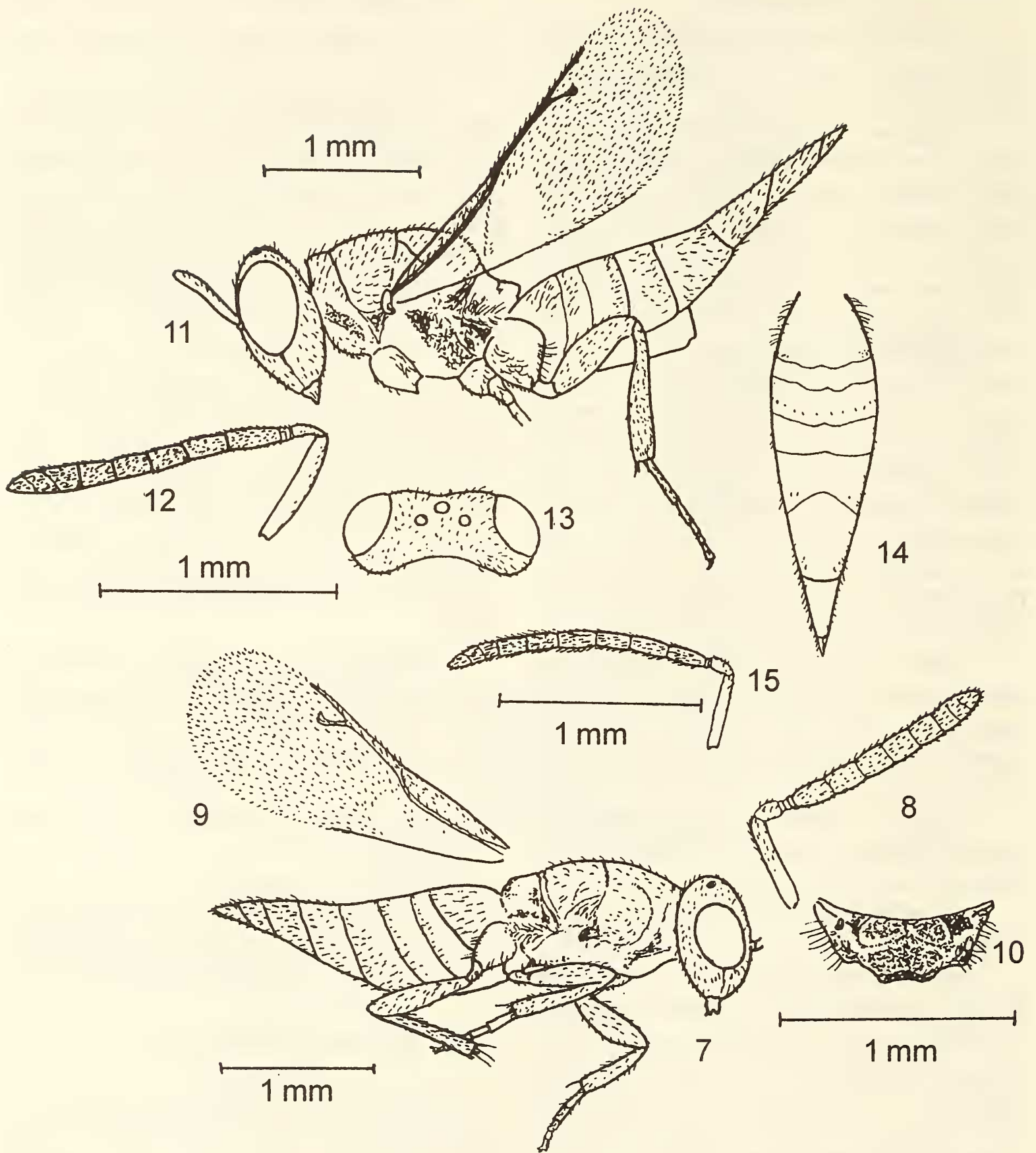
Biology: Reported parasitic on larvae of the Buprestid beetle *Sphenoptera gossypii* from Sudan, Africa (Ferriere 1931). Mani (1938) reported it from the same host from Punjab, India.

Distribution: India (Punjab) and Africa (Sudan).

Material examined: Holotype: ♀ in BMNH having data as follows: B.M. type Hym. 5.692. British Sudan: Wad Medani, 23.i.1925, H.B. Johnston, ex. *Sphenoptera gossypii* Cotes.

Oxysychus macregaster sp. nov.
(Figs 11-15)

Female: Length 2.9-4.0 mm (Holotype 3.7 mm). Head and thorax bluish-black; gaster aeneous with bluish reflection on T1; antennae testaceous, except club, F1 and F5 brownish; coxae concolorous with thorax, except middle coxae brown, remainder of legs testaceous except tips of tarsi brown; tegulae brown; wings hyaline; veins pale brown.



Figs 7-10: *Oxysychus sphenopterae* (Ferriere), Female: 7. Body in profile, 8. Antenna, 9. Forewing, 10. Propodeum in dorsal view

Figs 11-15: *Oxysychus macregaster* sp. nov., Female: 11. Body in profile, 12. Antenna, 13. Head in dorsal view, 14. Gaster in dorsal view, 15. Male antenna

Head (Figs 11, 13): Moderately reticulate; clypeus striated. In dorsal view, head width 2.1x length and in front view width 1.3x height; temple length 0.2x eye length; POL 1.5x OOL; eye length 1.5x width in profile; malar space half of eye length; clypeus bidentate. Antennae (Fig. 12) inserted a little below middle of face; scrobe deep; antennae slender; scape 0.9x eye length; pedicel length 2x width; third anellus a little longer than others; club as long as two preceding segments together. Relative lengths of F1 to F5 : 10 : 7 : 6.5 : 6.5 : 6.

Thorax (Fig. 11): Raised reticulate; pronotum finely margined. Mesoscutum width 2x length; notauli reaching up to middle. Scutellum convex, a little wider than long (20.5 : 18.5). Propodeum with no median carina (some specimens have a weak median carina which is also either incomplete or absent). Prepectus finely reticulate. Forewing (Fig. 11) with basal vein pilose; costal cell with upper half hairy. Relative lengths of SMV, MV, PMV and STV : 36.5 : 22.5 : 16.5 : 8. Legs slender; hind femora length 3.5x width and shorter than tibia (0.9x); hind tibia with two spurs.

Gaster (Figs 11, 14): Elongate, acuminate, longer than head plus thorax (60 : 44.5); hind margins of T1-T3 slightly produced and notched in the middle.

Male (Fig. 15): Length 3.1 mm. Smaller than female; differs from female in having antenna with 2 anelli and 6 funicle segments; ocelli larger and gaster shorter, compressed, shorter than head plus thorax with a broad yellow spot reaching the middle.

Distribution: India (Kerala).

Material examined: Holotype: ♀, INDIA: Kerala: Calicut University Campus, 24.x.1986, Coll. P.M. Sureshan; Allotype: ♂, Peechi, 28.x.1989, Coll. Narendran and party; Paratypes: 1 ♀, Peechi, 5.ii.1989, Coll. P.M. Sureshan; 2 ♀, Shertallai, 27.ii.1989; 1 ♀, data as that of holotype; 16 ♀, Calicut University Campus, Coll. P.M. Sureshan from 1986-89.

Remarks: This species resembles *O. ferus* (Girault) in having slender antenna with F1 length 2.5x width, F2 and F3 length 2x width, F5 equal to pedicel; forewing with PMV elongate, length 2x STV, less robust body, tegulae and general coloration yellow, but differs from *ferus* in having scape less than twice the club; propodeum without an obscure cross ridge before middle; gaster with T2 a little shorter than T3 and antenna reddish except reddish-black on scape and pedicel (in *ferus* scape length twice the club, propodeum with an obscure ridge before middle, T2 equal to T3 and T4, and antennae except scape and pedicel reddish-black).

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